

Memorandum of Understanding

Regional Energy Market Assistance Program (REMAP)

Central Asian Regional Transmission Planning Project (CARTRANS)

The initial meeting of the Central Asian Regional Transmission Planning Project, hereby known as CARTRANS, was conducted in Bishkek, Kyrgyzstan in August 2007. At the meeting representatives of the transmission system operators in Kazakhstan, Kyrgyzstan, Tajikistan, the Coordinating Dispatch Center Energia of Central Asia located in Tashkent, Uzbekistan, and the Electricity Coordinating Center of Belgrade (technical project manager), together with representatives from the US Agency for International Development (USAID), and its implementing partner US Energy Association, developed and agreed to a set of organizing principles and implementation approaches for CARTRANS. The content of this Memorandum of Understanding describes those principles and approaches as detailed below.

Rapidly changing demand and supply balance, patterns of load-growth, and planned additions of new network elements, such as several generation stations, transmission lines and substations are increasing the stress on the existing grids and its underlying characteristics. CARTRANS is expected to assist transmission system operators in Central Asia (TSOs) in developing unified national and regional transmission models to improve safety, security, reliability and efficiency of the synchronously interconnected Central Asian power system. The planning model will analyze potential bottlenecks and transmission congestion; identify priority investment, and support trade, as a basis for system operations within the region and neighboring inter-connected grids. Development of these technical models complements work on market design and policy issues to show if the regional transmission network has sufficient capacity to facilitate trade as markets develop and mature.

In addition, CARTRANS is expected to develop human resources by training local specialists to gain world-class expertise in complex systems analyses as a framework for modern power system operations and attracting investments.

CARTRANS GOALS

CARTRANS supports the following goals:

- Promotion of regional cooperation on transmission planning among TSOs
- Identification of priority investments in transmission systems and interconnection to improve reliability, stability and expansion; and

- Enhancing of trade and market relations within the Central Asia power systems and neighboring countries.

CARTRANS OBJECTIVES

CARTRANS supports the following objectives:

- Develop a common platform for transmission system analysis among TSOs;
- Provide training to TSOs in the use of transmission planning software (PSS/E);
- Analyze the existing Central Asia regional transmission system and proposed new generation and transmission elements to identify the current and future potential for electric power trade in the region;
- Identify potential transmission investment projects necessary to expand electric power trade in Central Asia while respecting reliability and security requirements; and
- Promote the results of the CARTRAN supported analysis to a wide audience of policy and regulatory authorities, and financiers.

CARTRANS ACTIVITIES

CARTRANS consists of the following activities:

- Purchase of PSS/E software for TSOs and training of TSO personnel on PSS/E software;
- Preparation of national network model inputs and the development of a regional network model;
- Training on the economic evaluation of transmission projects;
- Power transmission system analysis; and
- Elaboration and dissemination of a final CARTRAN report

CARTRANS ORGANIZATION

CANTRANS includes the following organization elements:

A Steering Committee with one representative from each of the following entities:

- Kazakhstan Electricity Grid Operating Company
- National Electric Grid of Kyrgyzstan
- Barki Tojik
- [Turkmenenergo]
- [Uzbekenergo]

- Coordinating Dispatch Center Energia
- Electricity Coordinating Center of Belgrade, as technical manager
- USAID
- US Energy Association

The Steering Committee may include representatives from additional entities, subject to the consent of all of the members. The Steering Committee will primarily communicate via E-mail, with meetings scheduled in the beginning, middle and towards the end of the project as appropriate, to review work plans, assess objectives and plans, and review draft reports and recommendations on investment priorities.

Other organizations that may be invited as members of the Steering Committee include:

- Asian Development Bank
- International Bank for Reconstruction and Development

A Regional Working Group will consist of representatives from USAID and US Energy Association, and up to 2 representatives from each participating TSO.

The Electricity Coordinating Center, located in Belgrade, working with the Coordinating Dispatch Center Energia of Central Asia, is expected to act as the regional model integrator.

A work plan and schedule will be developed by the Regional Working Group to organize the CARTRAN activities.

COST SHARING

Entities participating in CARTRANS intend to share the cost of the activities as follows:

USAID, through USEA or any successor implementing organization, intends to fund:

- Purchase of software and training program;
- Travel, accommodation and per diem for representatives to the Regional Working Group and Steering Committee meetings;
- Support for the regional model integrator; and
- Support for consultants and institutes.

The TSOs intend to fund:

- Development of national data and national model preparation;
- Costs associated with hosting meeting and training events. The hosting of events is voluntary and involves providing a meeting room located within the host utility,

providing access to audio-visual equipment necessary to conduct the meeting or training (computer, LCD projector), and coffee breaks.

AGREEMENT

All undertakings of USAID under this Memorandum of Understanding are subject to the availability of funds and to the agreement between USAID and US Energy Association, or any successor implementing organization, regarding the provision of in-kind assistance. This Memorandum of Understanding does not effect an obligation of funds by USAID.

By signing below, the signatories express their intent to participate in CARTRANS within the framework of this memorandum:

Kazakhstan Electricity Grid Operating Company

_____ Date _____

National Electric Grid of Kyrgyzstan

_____ Date _____

Barki Tojik

_____ Date _____

[Turkmenenergo]

_____ Date _____

[Uzbekenergo]

_____ Date _____

Coordinating Dispatch Center Energia

_____ Date _____

United States Agency for International Development

Date